

ABSTRACT

An electro-optic (EO) polymer that has a tunable index of refraction and are synthesized by the copolymerization a bisphenol monomer including a chromophoric structure and two diepoxy monomers. One diepoxy monomer includes at least one fluorine atom, and the second diepoxy monomer includes no fluorine atoms. The EO films are prepared by applying an electric field across the film as the film is heated to its glass transition temperature. The electric field is removed after cooling the film. The index of refraction of these nonlinear optical polymer materials is tuned between about 1.58 to about 1.66 (measured with light having a wavelength of about 1.3 microns).